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**NORTHERN DYNASTY MINES INC.**

**DRAFT ENVIRONMENTAL BASELINE STUDIES  
PROPOSED 2007 STUDY PLANS**

**CHAPTER 13.  
SUBSISTENCE**

***DRAFT***

**SEPTEMBER 2007**

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## ACRONYMS

ADF&G      Alaska Department of Fish and Game  
SRB&A      Stephen R. Braund & Associates

## 13. SUBSISTENCE

The objectives and methods/approach for the mine study area, transportation corridor, and the port area are the same as described in the 2005 and 2006 study plans with the exceptions noted below. Stephen R. Braund & Associates (SRB&A) will lead the subsistence work for these areas. The Alaska Department of Fish and Game (ADF&G), Division of Subsistence, will collaborate with SRB&A and conduct systematic household surveys in Bristol Bay communities, updating baseline information about subsistence hunting, fishing, and gathering that is compatible with information collected in previous rounds of ADF&G household interviews.

Table 13-1 summarizes work done on the subsistence and traditional knowledge studies in 2004 through 2007.

### 13.1 Objectives of Study

The objectives of the subsistence study are as described in Section 13.1 of the 2005 study plan.

### 13.2 Proposed Study Plan

The proposed work for 2007 is the continuation of research described in the 2005 and 2006 study plans with some minor revisions, including the inclusion of Lime Village in the ADF&G household survey and the SRB&A subsistence mapping and traditional knowledge research. The communities and schedule for research are shown in Figure 13-1.

ADF&G Division of Subsistence has completed household surveys in Nondalton, Newhalen, Iliamna, Pedro Bay, and Port Alsworth for the 2004 study year, produced a draft report for review and is completing the final report for these five communities. ADF&G also completed household surveys in Kokhanok, Igiugig, Levelock, New Stuyahok, and Koliganek for the 2005 study year. ADF&G is preparing the draft report, and SRB&A is preparing the ADF&G maps for these five communities.

ADF&G Division of Subsistence will attempt for a second time to conduct its household survey in Ekwok whose leadership declined to participate in the 2006 survey. Additionally, ADF&G will follow up on agency comments that Portage Creek has more than one household residing in the community to assess the possibility of conducting their survey in that community.

ADF&G Division of Subsistence, with assistance from SRB&A, will initiate household surveys in six communities (Manokotak, Lime Village, Naknek, South Naknek, and King Salmon).

SRB&A conducted subsistence mapping and traditional knowledge interviews in Nondalton, Newhalen, Iliamna, Pedro Bay, Port Alsworth, Kokhanok, Igiugig, Levelock, Ekwok, New Stuyahok, Koliganek, and Portage Creek. SRB&A has edited and conducted quality control measures for these field data, processed the field data, and digitized the mapped information. SRB&A is analyzing and compiling the data, developing data summaries and tables, and preparing maps and the draft environmental baseline report.

SRB&A will initiate subsistence and traditional knowledge interviews in Manokotak, Lime Village, Clark's Point, and Aleknagik. SRB&A will edit and perform quality control for the field data, process field data, digitize mapped information, analyze data, compile data, and develop data summaries.

# TABLE

**TABLE 13-1**  
**Pebble Project Environmental Studies**  
**Study Summary for Subsistence and Traditional Knowledge, 2004-2007**  
**Consultant: Stephen R. Braund & Associates**

Discipline	2004 Data Collected or Tasks	2005 Data Collected or Tasks	2006 Data Collected or Tasks	2007 Tasks to be Completed
<b>Subsistence/ Traditional Knowledge, All Areas</b>	Lit review & background information gathering	Lit review & background information gathering	Continue Literature review	Continue Literature review
	Scope, Schedule, Field Sampling Plan	Scope, Schedule, Field Sampling Plan	Scope, Schedule, Field Sampling Plan	Scope, Schedule, Field Sampling Plan
	2004 Study Plan	2005 Study Plan	2006 Study Plan Summary	2007 Study Plan Summary
	Ekwok NMWC Presentation Oct 2004			
	Initiate community contacts	Continue community contacts	Continue community contacts	Continue community contacts
		ADF&G household survey - 5 communities - Round 1 (Nondalton, Newhalen, Iliamna, Pedro Bay, Port Alsworth)	ADF&G household survey - 7 communities (Kokhanok, Igiugig, Levelock, Ekwok, New Stuyahok, Koliganek, and Portage Creek). ADF&G only completed 5 (less Ekwok & Portage Creek)	ADF&G household survey - retry Ekwok; reconsider Portage Creek
		SRB&A subsistence mapping/TK interviews begun in 12 communities (Nondalton, Newhalen, Iliamna, Pedro Bay, Port Alsworth, Kokhanok, Igiugig, Levelock, Ekwok, New Stuyahok, Koliganek, and Portage Creek). Round 2	SRB&A subsistence mapping/TK interviews; return trips to where not finished & return to those communities (of 12) that request additional interviews (Nondalton, Newhalen, Iliamna, Pedro Bay, Port Alsworth, Kokhanok, Igiugig, Levelock, Ekwok, New Stuyahok, Koliganek, and Portage Creek)	SRB&A subsistence mapping/TK interviews; return trips to where not done & return to those communities (of 12) that request additional interviews (Nondalton, Newhalen, Iliamna, Pedro Bay, Port Alsworth, Kokhanok, Igiugig, Levelock, Ekwok, New Stuyahok, Koliganek, and Portage Creek)
			SRB&A add Lime Village mapping/TK Interviews	SRB&A add Lime Village mapping/TK Interviews
		ADF&G data entry & analysis - 5 communities (Round 1)	ADF&G data analysis - 5 communities (Round 1)	
	SRB&A map preparation of ADF&G data - 5 communities (Round 1)	SRB&A map edits of ADF&G data - 5 comm. (Round 1)		

Discipline	2004 Data Collected or Tasks	2005 Data Collected or Tasks	2006 Data Collected or Tasks	2007 Tasks to be Completed
		ADF&G report preparation - 5 communities (Round 1)	ADF&G submitted draft report to SRB&A - 5 communities (Round 1). ADF&G completed community review. Completing final report. Anticipate final Dec 06.	
			ADF&G Data Analysis - 7 Round 2 communities (less Ekwok & Portage Creek)	ADF&G Data Analysis - 7 Round 2 communities (less Ekwok & Portage Creek)
			SRB&A map preparation of ADF&G data - 7 comm. (less Ekwok & Portage Creek). Round 2	SRB&A map preparation of ADF&G data - 7 comm. (less Ekwok & Portage Creek)
			ADF&G report preparation - 7 communities (less Ekwok & Portage Creek) Round 2	ADF&G report preparation - 7 communities (less Ekwok & Portage Creek)
		SRB&A post-field editing & processing field data & notes, compile and analyze data - 12 communities	SRB&A post-field editing & processing field data/notes, compile and analyze data - 12 communities	SRB&A post-field editing & processing field data/notes, compile and analyze data - 12 communities
		SRB&A digitize mapping data - 12 communities	SRB&A digitize mapping data - 12 communities	SRB&A digitize mapping data - 12 communities
		SRB&A quality control	SRB&A quality control	SRB&A quality control
			Data entry/analysis Lime Village- did not do in 2006	Data entry/analysis Lime Village
				ADF&G initiate household survey - 5 communities (Manokotak, Lime Village, Naknek, South Naknek, King Salmon). Round 3
				ADF&G Data Analysis - Round 3
				SRB&A map preparation of ADF&G data - Round 3
				ADF&G Report Preparation - Round 3
				SRB&A subsistence/TK interviews in four communities (Manokotak, Lime Village, Clark's Point, & Aleknagik)

Discipline	2004 Data Collected or Tasks	2005 Data Collected or Tasks	2006 Data Collected or Tasks	2007 Tasks to be Completed
				SRB&A post-field editing & processing field data/notes, compile and analyze data, QC - 4 communities
				SRB&A digitize mapping data - 4 communities
				Interviews in Cook Inlet communities
				Place Name Inventory
		Communication and Data Management	Communication and Data Management	Communication and Data Management
		Data Analysis	Data Analysis	Data Analysis
		Feasibility Report-Subsistence (9/13/05)		
	Agency Presentation Oct 2004	Agency Presentation Nov 2005	Agency Presentation Nov/Dec 2006	Agency Presentation 2007
			Research & develop place names database/map	Research & develop place names database/map
	Coordination with NDM & Agencies	Coordination with NDM & Agencies	Coordination with NDM, agency meetings, and monthly reporting	Coordination with NDM, agency meetings, and monthly reporting
		Draft Environmental Baseline Document	Preliminary Environmental Baseline Document	Preliminary Environmental Baseline Document
				SRB&A incorporate ADF&G findings into SRB&A env. baseline document
	Total Subsistence/TK - SRB&A	Total Subsistence/TK - SRB&A	Total Subsistence/TK - SRB&A	Total Subsistence/TK - SRB&A
	Total Subsistence ADF&G	Total Subsistence ADF&G	Total Subsistence ADF&G	Total Subsistence ADF&G

NOTES:

ADF&G = Alaska Department of Fish and Game

NDM = Northern Dynasty Mines Inc.

TK = traditional knowledge

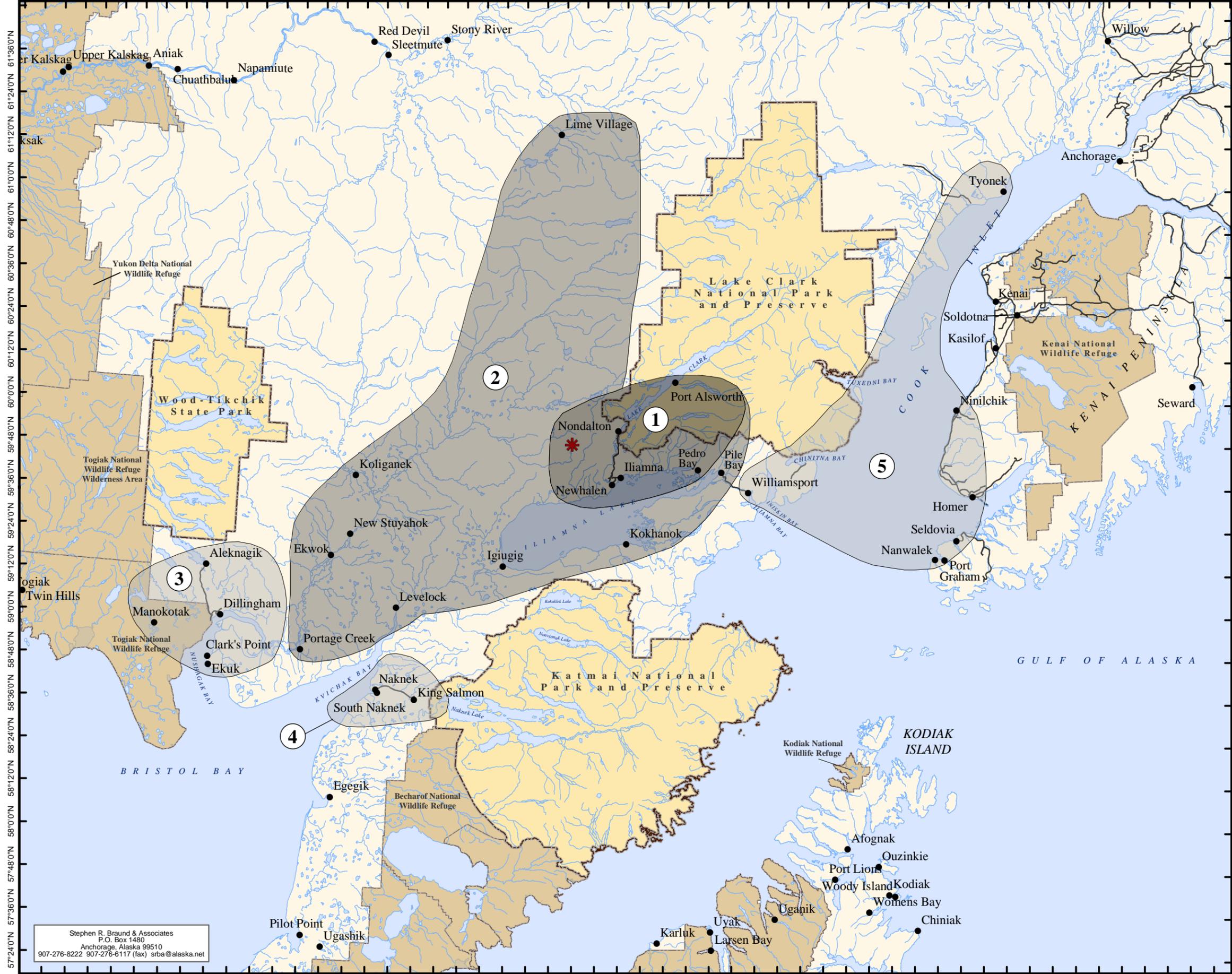
## FIGURE

160°48'0"W 160°12'0"W 159°36'0"W 159°0'0"W 158°24'0"W 157°48'0"W 157°12'0"W 156°36'0"W 156°0'0"W 155°24'0"W 154°48'0"W 154°12'0"W 153°36'0"W 153°0'0"W 152°24'0"W 151°48'0"W 151°12'0"W 150°36'0"W 150°0'0"W 149°24'0"W 148°48'0"W

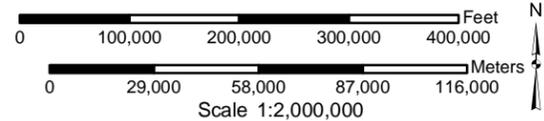
# Pebble Project

NORTHERN DYNASTY MINES INC.

Subsistence: Study Communities and Schedule  
Figure 13-1



- Communities
  - ✱ Mine site
  - Roads
  - Rivers
- ① ADF&G HH Survey and SRB&A Subsistence Mapping Interviews 2005-2006 - 5 Communities
  - ② SRB&A Subsistence Mapping Interviews 2005-2006 (except Pile Bay & Lime Village) - 7 Communities & ADF&G HH Survey 2006-2007 (except Pile Bay & Lime Village) - 7 Communities
  - ③ SRB&A Subsistence Mapping Interviews 2007-2008 (except Dillingham & Ekuik, plus Lime Village) - 4 Communities
  - ④ ADF&G HH Survey 2007-2008 (plus Manokotak & Lime Village) - 5 Communities & SRB&A Subsistence Mapping Interviews 2008 or later - 3 Communities
  - ⑤ Telephone Interviews 2008 or later



Alaska State Plane Zone 5 (units feet)  
1983 North American Datum

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159°36'0"W 159°12'0"W 158°48'0"W 158°24'0"W 158°0'0"W 157°36'0"W 157°12'0"W 156°48'0"W 156°24'0"W 156°0'0"W 155°36'0"W 155°12'0"W 154°48'0"W 154°24'0"W 154°0'0"W 153°36'0"W 153°12'0"W 152°48'0"W 152°24'0"W 152°0'0"W 151°36'0"W 151°12'0"W 150°48'0"W 150°24'0"W 150°0'0"W 149°36'0"W